DOCUMENT RESUME

ED 048 888 LI 002 689

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TITLE Committee on Scientific and Technical Information of the Federal Council for Science and Technology of the United States of America: A History.
PUB DATE May 71
NOTE 92p.; A Paper Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Library Science in the Graduate School of the Texas Woman's University

EDRS PRICE EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS Education, Federal Programs, Government Role, History, Information Dissemination, *Information Needs, *Information Networks, *Information Science, Information Services, Information Systems, *Library Programs, *National Programs, Technological Advancement, Training
IDENTIFIERS *Committee on Scientific and Technical Information, COSATI, SATCOM, Scientific and Technical Information, STINFO

ABSTRACT

The Committee on Scientific and Technical Information (COSATI) of the Federal Council for Science and Technology has responsibility for the discussion of federal issues and problems relating to scientific and technical communication within the Government sector. Consideration of information problems on a national level began in 1958 and led to the establishment of COSATI in 1964. Fourteen panels and task groups deal with information aspects of operational techniques and systems, technology, and its utilization, education and training, international activities, management, analysis and data centers, legal considerations, national systems, library programs, dissemination, synoptic data and technical reports. These panels and groups study and make recommendations to meet national information needs based on the evolving scientific and technical information systems, the ability of federal agencies to effectively carry out information missions, the development of internationally compatible systems, and the development of new technology. Although COSATI has no authority to enforce its recommendations, the importance of its accomplishments is leading to its greater recognition. (AB)

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COMMITTEE ON SCIENTIFIC AND TECHNICAL INFORMATION OF THE FEDERAL COUNCIL FOR SCIENCE AND TECHNOLOGY OF THE UNITED STATES OF AMERICA: A HISTORY

A PAPER

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR

THE DEGREE OF MASTER OF LIBRARY SCIENCE

IN THE GRADUATE SCHOOL OF THE

TEXAS WOMAN'S UNIVERSITY

SCHOOL OF

LIBRARY SCIENCE

LI 002 689

BY

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DENTON, TEXAS

MAY, 1971

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LIST OF ABBREVIATIONS

ACDA	Arms Control and Disarmament Agency
AEC	Atomic Energy Commission
CODATA	Committee on Data for Science and Technology
CFSTI	Clearinghouse for Federal Scientific and Technical Information
COSATI	Committee on Scientific and Technical Information
COSI	Committee on Scientific Information
DOD	Department of Defense
DOT	Department of Transportation
ERIC	Educational Research Information Center
FAA	Federal Aviation Agency
FCC	Federal Communications Commission
FCST	Federal Council for Science and Technology
FID	International Federation for Documentation
HEW	Department of Health, Education, and Welfare
HUD	Department of Housing and Urban Development
IAEA	International Atomic Energy Agency
ICSU	International Council of Scientific Unions
ICSU/UNESCO	International Council of Scientific Unions/ United Nations Education, Social and Cultural Organization
NASA	National Aeronautics and Space Administration

NRCST	National Referral Center for Science and Technology
NSF	National Science Foundation
NSRDS	National Standard Reference Data System
NTIS	National Technical Information Service
OECD	Organization for Economic Cooperation and Development
OST	Office of Science and Technology
SATCOM	Committee on Scientific and Technical Communication
SIE	Science Information Exchange
UNESCO	United Nations Education, Social and Cultural Organization
UNISIST	United Nations Educational, Scientific, and Cultural Organization-International Council for Scientific Unions Science Information System
VA	Veterans Administration

CHAPTER I

INTRODUCTION

The Committee on Scientific and Technical Information (COSATI) of the Federal Council for Science and Technology, United States of America, is the center for discussion of federal wide issues and problems, promoting the transfer of new ideas and improving techniques in scientific and technical communication within the federal government and professional scientific and technical organizations. COSATI is the principal mechanism by which views of individual agencies can be obtained and a consensus reached on desirable federal programs in scientific and technical information. The Office of Science and Technology provides an executive device for the implementation of recommendations that are formulated.

COSATI is proof that the Executive Offices of the President are concerned with developing information handling programs employing modern methods. Federal agency heads have recognized the need for continuing action to improve information exchange and are willing to develop appropriate interagency programs. COSATI is the means to improve, order, and integrate the complex information systems of the federal agencies, thereby contributing improved coordination of government research and development.

COSATI is stimulating organizations, government and otherwise, both in the United States and overseas, in science and technology, and other fields, to improve their methods and capabilities in communicating efficiently and effectively both internally and externally.[1]

The United States government has emphasized the need to coordinate the growth of agency information systems through the activities of its Committee on Scientific and Technical Information (COSATI) organized under the Federal Council for Science and Technology, which advises the President of the United States through the Office of Science and Technology.

Through its panels and task groups, COSATI stresses the need to provide organized access to available scientific and technical information. The panels and task groups provide the specific and continuing attention to details and operational features necessary for progress.

COSATI is a forum for discussion of government wide problems, a sounding board, a medium of news exchange, and a focus of interagency attention on specific aspects of scientific and technical information and communication. The concepts underlying the actions of COSATI are:

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[1]Committee on Scientific and Technical Information of the Federal Council for Science and Technology, Progress of the United States Government in Scientific and Technical Communications 1966 (Washington, D. C.: Committee on Scientific and Technical Information, 1966), p. 1.

1. The evolving scientific and technical information systems will be continuously responsive to the needs of users in science, technology and education;
2. The growing information systems will be evolutionary in character and wherever possible will be based on the present information systems and facilities;
3. To the maximum extent possible, information systems will be decentralized and operated by the user community they serve;
4. Internationally compatible information systems will be the goal of the programs and maximum interchange of the world's scientific and technical knowledge will be sought;
5. Advances in new information processing technology will be applied to the maximum but superior science communications is first and foremost an intellectual process;
6. The federal agencies will continue to improve their capability to process, store and exchange information and data; develop programs to enable maximum interaction with nongovernment groups with similar aims; and work toward intercommunicating and worldwide scientific and technical information systems.

CHAPTER II

ORIGIN AND FORMATION OF COSATI

The development of COSATI resulted from a number of reports and studies that were made between 1958 and 1964.[1] With the launching of Sputnik I in 1957, the federal government and private concerns began studying the problems relating to the information systems affecting science and technology. Three of these reports had a tremendous effect on the formation of COSATI. These reports are the Baker, Crawford, and Weinberg reports.

Baker Panel (1958)

In concluding that "progress in science is dependent upon the free flow of scientific information and that publication of research information is absolutely essential," the Baker panel recommended the establishment of a federal science information service to assist and coordinate existing programs of government agencies and private organizations

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[1]More than twenty papers dealing with the need for a national system were published between 1958 and 1964. Most of these plans are analyzed in Appendix A to Recommendations for National Document Handling Systems in Science and Technology, Systems Development Corporation, Santa Monica, September 1965 (AD 624 560).

for short term relief, and to encourage and support a long term research and development program.[1]

Crawford Task Force (1962)

In 1962 Dr. Jerome B. Wiesner, Science Advisor to the President, appointed a special task force to examine federal information programs. Two major organizational recommendations were made to improve the flow of recorded information within the federal government:

1. A central authority should be established to:
   a. define objectives of government information programs
   b. plan, develop, and guide organization of government information activities
   c. develop criteria (including financial) for effective operation of a government wide information system
   d. review and evaluate performance of federal agency information systems
   e. provide systems research, engineering and development
2. Each research and development agency of the federal government should set up an office

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[1]W. O. Baker et al., Improving the Availability of Scientific and Technical Information in the United States, Panel Report of the President's Science Advisory Committee, December 7, 1958.

exercising agency wide direction and control of information activities.[1]

The Office of Science and Technology (OST) was established in the Executive Office of the President by Reorganization Plan Number 2 of 1962, effective June 8, 1962. This office is probably the central authority that the Crawford Task Force recommended.

Weinberg Panel (1963)

The Weinberg Panel recommended that:

1. Each federal agency concerned with science and technology must accept its responsibility for information activities in fields that are relevant to its mission. Each agency must devote an appreciable fraction of its talent and other resources to support of information activities.
2. To carry out these broad responsibilities each agency should establish a highly placed focal point of responsibility for information activities that is part of the research and development arm, not of some administrative arm of the agency.
3. The entire network of government information

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[1] J. H. Crawford et al., Scientific and Technical Communications in the Government, Task Force Report to the President's Special Assistant for Science and Technology, April, 1962 (AD 299 545).

systems should be kept under surveillance by the Federal Council for Science and Technology.

4. The various government and nongovernment systems must be articulated by means of the following information clearinghouses:
   a. Current Efforts Clearinghouse
   b. Report Announcement and Distribution
   c. Retrospective Search and Referral Service
5. Each agency must maintain its internal system in effective working order.
6. Problems of scientific information should be given attention by the President's Science Advisory Committee.

Recommendations to the Technical Community:

1. The technical community must recognize that the handling of technical information is a worthy and integral part of science.
2. The individual author must accept more responsibility for subsequent retrieval of what is published:
   a. Title papers in a meaty and informative manner.
   b. Index their contributions with keywords taken from standard thesauri. Societies and editors are urged to establish such thesauri wherever this is practical.

c. Write informative abstracts.

d. Refrain from unnecessary publication.

3. Techniques of handling information must be widely taught.

4. The technical community must explore and exploit new switching methods:

a. Specialized information centers

b. Central depositories

c. Mechanized information processing

d. Development of software

5. Uniformity and compatibility are desirable.[1]

On March 13, 1959, the Federal Council for Science and Technology (FCST) was established by Executive Order 10807. The formation of this council was the result of recommendations by the President's Science Advisory Committee in its report of December 27, 1958, entitled Strengthening American Science.

The function of the Federal Council for Science and Technology is to provide more effective planning and administration of federal science and technology, to identify research needs, to achieve better use of facilities, and to further international cooperation. The Council serves as a two way channel of communication between the President

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[1]A. M. Weinberg et al., Science, Government, and Information: The Responsibilities of the Technical Community and the Government In the Transfer of Information, Report of the President's Science Advisory Committee, January 10, 1963.

and his office and the federal agencies. It also serves as a forum for discussion of problems common to the agencies and for attaining a consensus on problem solution.[1]

The recommendations of the Baker, Crawford, and Weinberg reports as well as the stated function of the Federal Council for Science and Technology led to the establishment of the Committee on Science Information (COSI), the forerunner or COSATI, by the Council at its May 22, 1962, meeting. The Committee was the Council's response to the growing concern both in and out of government over the problem of management and diffusion of information created by the rapid growth of scientific and technical activities.

The functions of the Committee on Science Information were:

1. To coordinate agency scientific and technical information services;
2. To examine interrelationships of existing information services, both in and out of government, identify gaps or unnecessary overlaps;
3. To develop government wide standards and compatibility among systems. The Committee was also charged with immediate evaluation of--
4. The findings and recommendations of the special

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[1]Richard E. Barry, "Committee on Scientific and Technical Information Coordinates Interagency Information Systems," Navy Management Review, XII (April, 1967), 3-4.

task force's report on federal organization and management of information; and

5. Functioning of the Science Information Exchange.[1]

The Committee reexamined the needs for the Science Information Exchange and made recommendations for funding and management. The Committee on Science Information also began reviewing the report of the President's Science Advisory Council Panel on Science Information and an inventory of information activities in the federal government, with emphasis on recent changes. The inventory was submitted to Congress and employed as background for evaluation of further steps.

In February 1964, a new charter was prepared and approved by the Federal Council for Science and Technology which changed the name of the Committee on Science Information (COSI) to the Committee on Scientific and Technical Information (COSATI), with a scope enlarged to include technical as well as scientific information activities. More clearly, to include those engineering information activities in addition to that of a more scientific nature.

As originally conceived, COSATI was a mechanism primarily to insure, through interaction of the agency representatives, coordination, development of government

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[1]U. S. Federal Council for Science and Technology, Annual Report, 1962 (Washington, D. C.: Government Printing Office, 1962), p. 21.

standards, and increased compatibility among information systems. As a result of emerging needs, the new charter specified that COSATI would also contribute towards co-ordination and cooperation with improved federal and national systems for handling scientific and technical information.[1]

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[1]U. S. Federal Council for Science and Technology, The Role of the Federal Council for Science and Technology, Report for 1963 and 1964 (Washington, D.C.: Government Printing Office, 1965), p. 44.

CHAPTER III

FUNCTIONS, OBJECTIVES AND INTERNAL STRUCTURE OF COSATI

The primary objective of COSATI is to develop among the executive agencies a coordinated but decentralized scientific and technical information system for scientists, engineers and other technical professionals. As a secondary objective, COSATI is concerned with coordinating and co-operating with improved federal and national systems for handling scientific and technical information. In particular, COSATI is required to carry out the following activities pertaining to scientific and technical information:

1. Review the adequacy and scope of present programs; identify the problems and requirements and devise or review new programs and other measures to meet these requirements.
2. Recommend standards, methodology, systems and management policies to improve the quality and vigor of the information activities.
3. Identify and recommend assignments of responsibility among the executive agencies, and make recommendations concerning the resources assigned to the programs of the executive agencies.

4. Generally facilitate interagency coordination at management levels.[1]

The Committee on Scientific and Technical Information (COSATI) is one of the committees of the Federal Council for Science and Technology (FCST). Its members and observers represent twenty-eight federal agencies sharing a common awareness that nearly all United States government agencies have a need for scientific and technical information.

COSATI oversees the activities of seven panels and six task groups. These panels and task grouns study intensively selected aspects of scientific and technical information. Papers resulting from these studies are reviewed by COSATI and transmitted to the Federal Council for Science and Technology. After approval by the Federal Council for Science and Technology, the reports are appropriated implementation within agencies or by publication of reports for further study. The Chairman of COSATI and the Executive Secretary of the Federal Council for Science and Technology work closely, within the Office of Science and Technology (OST), to give executive coordination.[2]

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[1]Committee on Scientific and Technical Information of the Federal Council for Science and Technology, Progress of the United States in Scientific and Technical Communications 1966 (Washington, D. C.: Committee on Scientific and Technical Information, 1966), p. 8.

[2]Committee on Scientific and Technical Information of the Federal Council for Science and Technology, Progress of the United States Government in Scientific and Technical Communication 1968 (Washington, D.C.: Committee on Scientific and Technical Information, 1968), p. 1.

COSATI, the committee of the whole, is composed of twelve members of policy rank. This allows members to direct management changes in the research and development programs of their respective department or agency in a manner consistent with the agreed positions and policies of the interagency council.

As the center to create more effective and efficient systems for transferring scientific and technological information among national and international government agencies, COSATI also works through specialized panels and ad hoc groups. COSATI meets once a month as a whole committee and the panels and task groups meet at least once a month. Voting is limited to the twelve member agencies and departments. Representatives of observer agencies do not vote but may speak and participate in the meetings. The membership of COSATI is composed of representatives of the following departments and agencies:

Member agencies

Atomic Energy Commission

Department of Agriculture

Department of Commerce

Department of Defense

Department of Health, Education, and Welfare

Department of Housing and Urban Development

Department of the Interior

Department of State

Department of Transportation

National Aeronautics and Space Administration

National Science Foundation

Veterans Administration

Observer agencies

Agency for International Development

Arms Control and Disarmament Agency

Budget Bureau

Central Intelligence Agency

Federal Aviation Agency

Federal Communications Commission

General Services Administration

Labor

Library of Congress

Office of Education

Office of Emergency Planning

Patent Office

Post Office

Small Business Administration

Smithsonian Institution

United States Information Agency

The chairman of COSATI is appointed by the Federal Council for Science and Technology, as is the Executive Secretary. Each member agency appoints a representative to COSATI. These men and women who form the membership of COSATI as a whole are members, usually Chairmen, of the various panels and task groups. Membership on committees generally is limited to twelve people. This does not

include all the subpanels and other advisory or working groups within or sponsored by the panels and task groups.

Panels

Operational Techniques and Systems

Information Sciences Technology (disbanded in 1970)

Education and Training

International Information Activities

Management of Information Activities

Information Analysis and Data Centers

Legal Aspects of Information Systems

Task groups

Synoptic Data

Steering Group

Dissemination of Information

Technology Utilization

Library Programs

National Systems Task Group

COSATI is unique in that it recommends and does not implement or further act monetarily or manpower wise. COSATI studies existing problems and often recommends further review. COSATI serves as a neutral ground for interagency and departmental discussions. Their regular meetings and interaction in this neutral ground have helped to make COSATI the powerful catalyst it is today.

Panel on Operational Techniques and Systems (I)

COSATI was formed during a period of rapid growth in the scientific and technical information systems operated by the federal government. In June, 1965, to keep abreast of rapid changes, and to provide a forum in which community viewpoints could be explored while working toward integration of the various agency systems into a national resource, COSATI established the Panel on Operational Techniques and Systems.

The panel specifically includes the following activities in its area of responsibility: acquisition, accession, abstracting, indexing, announcement, distribution, terminology control, equipment compatibility and convertibility, wholesale and retail resources, specialized information centers, libraries, and depositories.

Functions:

1. Identifying needs for improved agency policies, programs, and practices relating to scientific and technical information
2. Facilitating more effective overall planning, management, and evaluation of these information efforts of the federal agencies
3. Making recommendations fulfilling functions 1 and 2.

The membership of this panel is mainly from the operating or production agencies involved in the handling

and dissemination of scientific and technical information in the form of documents. Examples of these would be the Clearinghouse for Scientific and Technical Information (CFSTI) now the National Technical Information Service (NTIS), the Defense Documentation Center for Scientific and Technical Information of the Defense Department's Supply Agency, the Office of Naval Research, the National Aeronautics and Space Administration, the Atomic Energy Commission, and the Department of Agriculture.

In 1965 the panel worked on the standardization and improvement of the technical report format. COSATI's effort in 1966 continued to be in the coordination and betterment of federal agency scientific and technical information systems and techniques. The panel was the group responsible for the spadework that has resulted in a number of standards, guidelines, and agreements, dealing with microfiche, corporate author lists, descriptive cataloging, and subject category lists that are in use throughout the government, and increasingly outside the government.

The panel and its subpanels processed the Joint Corporate Author List for the use of the COSATI community. This includes the procedures for the continuous updating of the Corporate Author List.[1] The COSATI Standard for Descriptive Cataloging and the COSATI Subject Category List

[1]Committee on Scientific and Technical Information of the Federal Council for Science and Technology, Progress of the United States Government in Scientific and Technical Communications 1966 (Washington, D. C.: Committee on Scientific and Technical Information, 1966), p. 7.

were reviewed, tested, and perfected as more was learned about their usefulness.

A first edition of Guidelines for the Development of Information Retrieval Thesauri was published in September, 1967. It sets forth guidelines for the selection of appropriate subject indexing terms and the display of these terms in a thesaurus format.

Selected Mechanized Scientific and Technical Information Systems was in press in 1967. This 140 page document describes in detail thirteen computer based, operational systems designed primarily for the announcement, storage, retrieval and secondary distribution of scientific and technical reports. Another publication, Format Guidelines for Scientific and Technical Reports Prepared by Contractors and Grantees was nearing final approval.

In November, 1967, the panel completed and COSATI approved a revised Section H concerning security markings, of the Federal Microfiche Standards. This has been incorporated into the third edition of the Standards.

The Selected Mechanized Scientific and Technical Information Systems and the third edition of the Federal Microfiche Standards were published in April, 1968. The panel has initiated steps to undertake revision and updating of Selected Mechanized Scientific and Technical Information Systems. In particular, effort will be made

to include appropriate systems of agencies in foreign governments. The Subpanel on Micromedia has reviewed the third edition of the COSATI Microfiche Standards for possible additional changes. A draft of such changes was to have been ready for panel consideration by the end of 1969. These changes were necessitated by rapid developments in the area of microforms and by interest in facilitating the handling of microfiche by automatic equipment. The subpanel was also working with the National Microfilm Association to develop standards for computer output microfilm (COM) and for micropublishing. These two publications have not been published as of December, 1970.

In November, 1968, the Guidelines to Format Standards for Scientific and Technical Reports Prepared By or For the Federal Government were approved for publication. In January, 1969, the Guidelines were issued by CFSTI. The objectives of this publication are to aid the ultimate users of the reports by making them more readable and generally easier to use; to aid the intermediate processor by making it easier to prepare, store, retrieve, reproduce and distribute the reports; to aid the producer of reports by reducing the number of different standards he may be required to follow; and to attain a significant overall reduction in the cost of scientific and technical reports to the federal government.

The Subpanel on Transfer of Bibliographic Descriptions on Magnetic Tape completed a draft Standard for the Transfer of Bibliographic Descriptions on Magnetic Tape of Scientific and Technical Reports in 1968. In 1968 this report was in the form of an appendix to the proposed USA Standard Format for Bibliographic Information Interchange on Magnetic Tape, prepared by the Z39 Committee of the USA Standards Institute (now the American National Standards Institute, Inc.). The Standard and its appendices were published in the June, 1969 issue of Journal of Library Automation.

In 1968 and 1969 efforts were directed by the Subpanel on Classification and Indexing to consider how best to revise the Subject Category List to serve the interests of all COSATI member agencies while still maintaining its current utility in clearinghouse and documentation center operations. A longer range objective in this area will be examination of the feasibility of achieving compatibility between the Bureau of the Budget Classification of Fields of Science and the COSATI Subject Category List.[1]

A Study of the Actual and Potential Interchange of Bibliographic Information Between Agencies, begun in 1968, was to examine such factors as the nature and volume of the

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[1]Committee on Scientific and Technical Information of the Federal Council for Science and Technology, Progress of the United States Government in Scientific and Technical Communications 1969 (Washington, D. C.: Committee on Scientific and Technical Information, 1969), p. 2.

material exchanged, the agencies involved in exchange, and the requirements for prompt dissemination with a view to providing a meaningful dialogue when problems, programs, or plans for the future systems were discussed. This study never got beyond the planning stage.

The Subpanel on Micromedia is cooperating with the United States Office of Education in sponsoring the development of a low cost (about $50.00 in quantity lots) microfiche reader. The revised list of corporate author headings, a by-product of the use of the COSATI Standard for Descriptive Cataloging of Scientific and Technical Reports, has been created as a magnetic tape file.[1]

Panel on Information Sciences Technology (2)

COSATI created a panel on Information Sciences Technology to maintain current awareness of technological developments and of research in information techniques and technology in June, 1965.

The functions of the panel are to assist the Federal Council with regard to information systems technology by recommending means to:

1. Ensure an orderly development of information science technology,
2. Avoid unnecessary duplication of research and development efforts,

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[1] Ibid.

3. Identify and eliminate gaps in technology so as to improve the effectiveness of federal agencies.
4. Improve the users' receptivity to new technology, and
5. Ensure an orderly transition from obsolete to improved systems.

The panel sponsored a series of discussions with eminent information specialists outside the government who were invited to review certain aspects of the panel's projected programs for federal agencies. During 1965 the panel pioneered in the preparation of an inventory of federal agency projects in information science technology.

Some 1,300 projects were identified and listed, and the panel arrived at a number of conclusions and recommendations for improved programs. Findings showed that those individuals who operate information sciences research and development programs and those who are charged with the supervision or management of agency scientific and technical information programs do not necessarily communicate with one another.

Also listed among the action areas of the panel for 1966 were: study of the problem of techniques and hardware for output-input of text, data, and descriptors, including the study of the efficiency of various file structuring systems and query language; study of problems associated with information storage and retrieval research; review of

the problems associated with documentation, miniaturization, storage, and handling which includes a three year experiment to determine the effectiveness and utility of abstract versus whole document dissemination; establishment of an experimental abstract dissemination system; study of information system evaluation and experimentation; and study of technical considerations in the dissemination of magnetic tapes.

In 1967 the panel continued the three year experimental production of the Inventory of Information Sciences Technology Work in Progress. This Inventory is being used only by government agencies until the experiment is completed. In particular, the panel undertook four major efforts in preparation for the publication of the second edition:

1. Collection of information on projects initiated since the publication of the first edition,
2. Updating of information on continuing projects,
3. Conversion of the data to machine-readable form and establishment of an automated information retrieval system,
4. Evaluation of the mechanized system.

The majority of the data was accumulated through submission of reports supplied by government agency focal points and by queries addressed to existing automated data bases, augmented in some cases by reports of research published in various periodicals.

The panel also began the investigation of on-line query capabilities to evaluate the utility of the inventory.

A third major area of concern has been document miniaturization. Publication of the COSATI Microfiche Specifications has provided a standard for reduction ratios, image positioning and related technical criteria for production both of the microfiche and the equipment needed to process and utilize it. The investigations of the panel made it clear that other miniaturization techniques which were in various stages of research and development could profit by issuance of a similar recommended standard. These recommendations consider document miniaturization and the problems of indexing, communication, and transfer of information. Plans were made to incorporate the material gathered on document miniaturization into recommendations concerning the larger problems of information networks.

In the latter part of 1967 and into 1968 the panel began a reorientation of its efforts toward support of network planning and national systems design. This was in support of the responsibility of the COSATI community to make the various scientific and technical information services sponsored or conducted by the federal government a cohesive and comprehensive reality. The technological areas identified for emphasis were communications technology, network modeling for purposes of load sharing and service distribution, evaluation methodologies, information protection

control and accessibility, and document handling. Work began with the isolation of major problem areas which were holding back networking of scientific and technical information services.

Arrangements were made to experiment with and evaluate the utility of cooperating federal information systems such as the Army's Chemical Information Data System and the Medical Literature Analysis and Retrieval System (MEDLARS) at the National Library of Medicine. Also, the panel initiated a project to place on-line in the Washington area its Inventory of Research and Development Projects in the Information Sciences sponsored by the federal government for experimentation by appropriate agencies. It was felt that this effort, which was supported by funds from the National Science Foundation and the National Library of Medicine, could be used as a vehicle for locating existing data bases appropriated for inclusion in a larger network as well as determining the problems certain to arise in the implementation of such a concept. With this experience as a base, recommendations for further action could then be made to COSATI.

During 1968 a data base was developed which included the second edition of Inventory II, bibliographic citations from the several editions of the Annual Review of Information Science and Technology, bibliographic references to a sample of the holdings of reports in the Technical Information

Exchange at the National Bureau of Standards, and a glossary of terms with definitions in the field of information science and technology.

One of the major objectives of the panel in 1969 was to encourage the sharing of the products of federally supported research and development in information science technology. Towards this objective, the panel developed an on-line system experiment beginning on April 14, 1969 providing two data bases on line in a random access computer file available for immediate retrieval from remote terminals. These two data bases, the 1967 and 1968 COSATI Inventory of Information Science Technology Work in Progress, contain reports of over 3,500 research and development projects. A modular manual, prepared for users of the system, will be distributed through the clearinghouse.

Panel Two has compiled 3,500 terms in the information sciences. Other terms from IBM and National Microfilm Association glossaries will be added to form the basis of an eventual authoritative glossary in the information sciences.[1]

Substantial progress has been made towards converting "COSATI Inventory II (1968)" to microfiche as it is stored in computer.

Three task forces of the panel are developing sections of a report on the impact of information sciences on

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[1]Compilation of Terms in Information Sciences Technology, April, 1970. Edited by Florence Casey. PB 193 346.

the national economy; the policy and programming implication of information sciences technology pertinent to national and to federal government planning and networks as means of resource sharing and organizing the information community. The report was scheduled for presentation to COSATI and OST in June, 1970.[1]

Panel Two was one of the cosponsors of a conference on "Image Storage and Transmission Systems for Libraries." The conference was held on December 1 and 2, 1969, at the National Bureau of Standards in Gaitherburg, Maryland.

This panel was disbanded in 1970, its functions being completed.

Panel on Education and Training (3)

The rapid growth of scientific and technical information systems, accompanied by technological change and increasing complexity, has created serious manpower problems in staffing them. A number of federal agencies and private institutions, including universities, have taken action to meet the manpower problem, but the total of their efforts were not sufficient for the national need. To coordinate, plan and review needs and activities, COSATI established a Panel on Education and Training in 1965. The goal of this

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[1]Committee on Scientific and Technical Information of the Federal Council for Science and Technology, Progress of the United States Government in Scientific and Technical Communications 1969 (Washington, D. C.: Committee on Scientific and Technical Information, 1969), p. 3. This report was not ready as of December, 1970.

group is to design programs to educate both the operators and the users of information systems. Its functions are:

1. Identify educational and training activities now supporting the scientific and technical information programs of the federal agencies.
2. Ascertain needs for improvement in agency policies, programs and practices relating to education and training in scientific and technical information.
3. Develop and recommend actions to improve education and training policies and programs in the use of scientific and technical information for research and development personnel and for those in the field of scientific and technical information.

In 1965 the panel took steps to ensure appropriate liaison and interaction with the Office of Education in its pending development of a significant program for education and research support in the information sciences under Title II of the Higher Education Act of 1965. The panel viewed the legislation authorizing the Higher Education Act of 1965 as the single most important stimulus for information science, with far-reaching implications for the panel's objectives. The panel plans the closest possible cooperation with the Office of Education in the development and evaluation of its Title II program.

In 1967 the panel directed two complementary efforts to develop training programs for potential users of information systems. Under the arrangements with the Office of Education, a contract for developing the "Course in Information Tools, Techniques and Resources for Scientists and Engineers" was awarded to Herner and Company, and another for supporting a "Symposium on Information Services for Behavioral Scientists and Educators" was awarded to the American Institute of Research. The purpose of both projects is to expose working professionals to the shortest and most productive routes to the various types of work related information. A Task Group within the panel was established to arrange for their publication and to investigate their possible implementation as Civil Service Commission Courses.

The panel has interacted with the Federal Library Committee and has established areas of overlapping interests. A Task Group within the panel has been established specifically to coordinate efforts with the Federal Library Committee and to study problems such as extending local education and training opportunities for library and information systems personnel, establishing a program of federal library internships and addressing the problems associated with job classification for personnel in the information field.

The Panel on Education and Training directed its 1968 efforts toward four specific objectives: the implementation of projects designed to create training programs

for potential users of information systems; the establishment of a group to investigate in-service training opportunities; the coordination of activities with the Federal Library Committee; the exploration of a Federal Intern program in the field of information science.

The training program was begun with two Office of Education supported projects: (1) American Institute for Research, "Orientation of Educators and Behavioral Scientists to Information Systems," and (2) Herner and Company, Study of Methods and Materials for Training Scientists and Engineers in the Use of Information Tools Resources and Facilities. The American Institute for Research project was completed on June 24, 1968, accepted, and is available in microfiche ($.75) or hard copy ($9.35) as ED. 020447 from Educational Research Information Center (ERIC) Document Reproduction Service, National Cash Register Company, 4936 Fairmont Avenue, Bethesda, Maryland 20014. The Herner and Company project A Brief Guide to Sources of Scientific and Technical Information is available in hard copy ($4.25) from Information Resources Press, 2100 M Street, NW, Suite 316, Washington, D. C. 20037.

In-service training activities are in the hands of a subcommittee. Preliminary work concentrated about the Systems Development Corporation project, "Research in and Development of On-the-Job Training Courses for Library Personnel," cosponsored by the United States Army and the

Office of Education. The project is conducting the research and development necessary to build modular on the job training courses for updating the education skills of library personnel. Further, reports of other government and private projects are brought before the panel members as they are discovered.[1]

A panel member, who also serves as a member of the Federal Library Committee's Task Force on Education, has been appointed as liaison between the two groups. This allows the flow of mutually important data between the two groups.

In 1969 the panel expanded three of its 1968 objectives and incorporated one additional activity in its 1969 action program. Projects designed to assist in the training of potential federal information source users were implemented, activities were coordinated with Federal Library Committee concerns and in-service training opportunities promoted. In addition, the area of "critical reviews" was examined as a possible subject of concern to panel members.

With funding assistance from the United States Office of Education and in accord with a suggestion included

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[1]Committee on Scientific and Technical Information of the Federal Council for Science and Technology, Progress of the United States Government in Scientific and Technical Communications 1968 (Washington, D. C.: Committee on Scientific and Technical Information, 1968), p. 7.

in the Committee on Scientific and Technical Communications (SATCOM) Report, the panel sponsored a motion picture for scientists, engineers, researchers, and selected staff of information centers and libraries for the purpose of increasing skill in locating necessary information through the more effective use of federal information systems and related services. The thirty minute color presentation was prepared by the Battelle Memorial Institute for a March 1970 release date.[1]

The panel, in cooperation with the National Defense Education Institute, encouraged the creation of a formal library training program directed toward government supported technical information sources. Existing descriptive materials and training aids are being identified by panel mambers, and Harbridge House is designing the seminar series.[2]

A project, cosponsored by the panel and the Task Force on Library Education of the Federal Library Committee and funded by the United States Office of Education, titled "Post-Master's Education for Library and Information Center Personnel," was placed at Catholic University. The project

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[1]The film titled Paper Blizzard may be borrowed from Battelle at no cost by writing Bernard K. Dennis, 1755 Massachusetts Ave., NW, Washington, D. C.

[2]Committee on Scientific and Technical Information of the Federal Council for Science and Technology, Progress of the United States Government in Scientific and Technical Communications 1969 (Washington, D. C.: Committee on Scientific and Technical Information, 1969), p. 5.

staff surveyed "job requirements" during 1969 and are currently embarking upon the development of models for pertinent courses and seminars. The courses were to be tested in 1970.[1]

Panel on International Information Activities (4)

In order to examine the problems of international information activities, to provide a forum for discussion of agency problems, and to create a mechanism for coordination and guidance, COSATI established a Panel on International Information Activities in 1965.

The functions are:

1. Recommend policies and programs for federal agencies regarding acquisition of foreign produced unclassified technical information and data.
2. Recommend policies and programs for federal agencies regarding dissemination of federally produced unclassified technical information and data to foreign countries.
3. Identify, evaluate and make recommendations on improved techniques for acquiring, translating and disseminating foreign produced unclassified information and data.
4. Identify, evaluate and make recommendations on improved governmental organization for increasing

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[1] Ibid.

the efficiency of exchange of information and data between the United States and other countries.

5. Recommend policies for federal agencies concerning the role of nongovernmental organizations and their support in international information exchange.

A COSATI Panel on International Information Activities was established because of the growing significance of scientific and technical information produced outside the United States. Department of State and FCST International Committee representation was arranged. The panel was formed to make recommendations on policies and programs for federal agencies regarding acquisition of foreign produced information and data, and improvement of governmental organization for exchange of information and data.

The COSATI Panel on International Information Activities is working on a United States policy for the exchange of magnetic tapes, microforms, and other bibliographic tools with foreign countries. The panel is also producing guidelines for domestic distribution of these media. Increasingly evident is the value of the panel as a forum and clearinghouse for those federal agencies which are engaged in international information exchange.

During February 1966, COSATI was host to seven Soviet scientific and technical information specialists, headed by N. B. Arutyunov, senior information systems

executive for the Union of Soviet Socialist Republics, State Committee for Coordination of Scientific Research. Plans will be made to continue dialogues to find ways of improving information exchange with the Soviets. Because the nature of international exchanges involves agency policy as often as it covers technical or methodological matters, this panel is unusual in its makeup. It is composed of the chiefs or directors of major operating programs in the federal government, rather than subject matter specialists, and includes representation from the Department of State and the International Committee of the Federal Council for Science and Technology.

The panel prepared Guideslines for Domestic and Foreign Dissemination of Machine Readable Indexes. These Guidelines represent an agreement which should lead to a more coherent and unified approach for exchange, sale, and employment of magnetic tapes containing bibliographic information. This is of paramount importance as nations begin to rely on the use of computers to control the mountainous growth of literature and data. The need for compatibility is becoming pressing, especially with the trend towards national and professional society based information systems.

It has also been agreed in COSATI that all federal agencies seeking to establish international information systems in particular fields will carefully describe their

plans and programs to each other before taking action. Through this device, there will be less possibility that new problems and complications will arise in the future, especially with the advent of mechanized systems. Thus the inauguration of a new Atomic Energy Commission International Information Exchange was the first such program discussed thoroughly in COSATI.

It has also been recommended and agreed that international information exchange should be based on reasonable reciprocity, and that for the foreseeable future data exchange should be arranged and maintained between international missions or discipline oriented groups rather than through a single, large, domestic clearinghouse. Thus, the Atomic Energy Commission and National Aeronautics and Space Administration, for example, will employ their scientific literature outputs to obtain reciprocal foreign inputs, rather than depend solely on release of their material through the Clearinghouse for Federal Scientific and Technical Information and voluntary reciprocation by foreign countries.

The International panel is also acting as a focus to provide advice, when requested, on informational matters to the United States representatives at international organizations, such as the Organization for Economic Cooperation and Development and the North Atlantic Treaty Organization, as well as the Department of State.

In 1967, the panel prepared a new federal policy governing the foreign dissemination of scientific and technical information by the agencies of the United States government.[1] The fundamental policy objective is to ensure that there exists within the United States at least one accessible copy of each significant foreign technical publication. While the policy reaffirms the need for the individual agencies to maintain their own mission oriented information exchange programs, it also requires intensified coordination of these programs with the Department of State to insure their compatibility with the declared United States foreign policies. The policy also commits the United States federal agencies to the establishment of compatible international systems through which technical publications can flow into the national system. In line with this, the United States federal agencies are expected to give first consideration to the cooperation with multilateral organizations if they provide means at least as effective as bilateral agreements in meeting the United States objectives.

Acting in its role as a focal point for the government wide coordination of agencies' views on various international proposals and actions, the panel concentrated its attention on the efforts of many international organizations

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[1]Federal Council for Science and Technology, Policies Governing the Foreign Dissemination of Technical Information by Agencies of the U. S. Federal Government (Washington, D. C.: Government Printing Office, January 31, 1968).

including the International Council of Scientific Unions (ICSU), International Atomic Energy Agency (IAEA), and the Organization for Economic Cooperation and Development (OECD). The ICSU group in cooperation with the United Nations Educational, Scientific, and Cultural Organization (UNESCO) is investigating the feasibility of world science information systems. The IAEA has created an operational system which features a decentralized input whereby each country would scan its own literature and prepare machine readable bibliographic descriptions for a central store at Vienna, Austria, to be available to all participating countries. The OECD group is examining the needs of its member countries and aims primarily at the information systems which support the technological and economical progress in industrialized countries. In all these areas, the panel served extensively as a vehicle for the discussion of the proposed United States policies and actions, and for the formulation of action recommendations to the Department of State and other federal agencies.

Nineteen hundred and sixty-seven was the year in which the panel sought to clarify its role in the coordination of United States international information activities. As the result of this introspection the panel has developed plans to expand its scope to areas such as the scientific reference data information systems and environmental data centers.

The plans also include a program for a more articulate exchange of views with the leaders in the nongovernmental sector of the United States information community. The primary objective of this effort is to enlist more active participation of the private information handling sector in the formulation of the future of the United States policies with respect to the international information systems and networks.

The aim of the ICSU/UNESCO study is to foster voluntary cooperation among existing and future services, share tasks and information among services in different disciplines and countries, adopt minimum guidelines for compatibility between systems, and provide access by developing countries to the network as it develops.

In 1968 the panel activities focused on the evaluation of the United States participation in the numerous international scientific and technical information activities, as well as on examining such internal problems as accessibility of translations, the agencies' use of funds available under P.L. 480, and the United States representation at international planning groups and committees. The emphasis was on monitoring of the progress in the ICSU/UNESCO Feasibility Study, deliberations of the Organization for Economic Cooperation and Development (OCED) Council of Minister and its policy groups, the work of the ICSU Committee on Data for Science and Technology (CODATA), and the

activities of the International Federation of Documentation (FID).

In the areas of domestic activities the panel initiated two studies; one to consider an improved use of the foreign currency holdings in certain European countries (P.L. 480 funds), the second to determine the need for federal policies on translations. Both of these studies were completed by 1969. The panel has also taken steps to implement its plans for the expansion of its scope of interest and enlargement of its domestic and foreign contacts. It has added to its membership a representative of the Library of Congress to insure appropriate coordination of the executive and congressional information programs abroad. The panel also began a series of the discussions with foreign leaders. Its first invitees were the representatives of the British Ministry of Technology who briefed the panel on the Ministry's technical information objectives and programs.

As the tempo of information activities on the international scene, and United States involvement therein, increased during 1969, the panel continued to serve as an important forum for the review of United States positions on major international issues, a focal point for exchange of knowledge about progress on the international scene, and a voluntary coordination mechanism for the many United States scientific and technical information activities abroad.

Under its plan of activities, the panel engaged in several reviews and studies aimed at development or revision

of federal policies and guidelines concerning announcement and dissemination of translations, utilization of special (excess) foreign currencies under Public Law 480 for international scientific communication, raw and critically evaluated data, acquisition of foreign scientific and technical information, and United States representation and staffing of international intergovernmental organizations. By the end of 1969, the first study resulted in submission to COSATI of a recommendation on Policies Governing the Announcement and Dissemination of Translations by Agencies of the U. S. Federal Government. The second study produced a notable background report, Agency Utilization of Special Foreign Currencies under Public Law 480 for International Scientific Communication, that describes the ten year history and current status of the operations of the P.L. 480 translations program. A draft policy statement is under review. The third and fourth studies were expected to be completed in 1970.[1] Because of its broader implications for United States science and technology the panel considered that the fifth study on United States representation and staffing of intergovernmental organizations should be given attention in its broader context by the Federal Council's Committee on International Activities.

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[1]Committee on Scientific and Technical Information of the Federal Council for Science and Technology, Progress of the United States Government in Scientific and Technical Communications 1969 (Washington, D. C.: Committee on Scientific and Technical Information, 1969), p. 6.

The panel reviewed and recommended revising the March 1968 Policies Governing Foreign Dissemination of Scientific and Technical Information by Agencies of the U. S. Federal Government to bring it into accord with recently issued Department of State Guidelines on Exchange of Unclassified Scientific and Technical information with Countries with Which We Do Not Have Diplomatic Relations. Also, consideration was being given to conducting an informal survey of bibliographic tape exchanges which federal agencies have with other countries. Several orientation reviews of international information exchange activities of federal agencies and the activities of selected foreign and international organizations were held.[1]

Close monitoring of the progress of activities of several major international organizations--The ICSU/UNESCO UNISIST study of the feasibility of creating a world science information system, ICSU/CODATA, the Organization of Economic Cooperation and Development's Scientific and Technical Information Policy Group, and the International Federation for Documentation--continued by means of the active participation or representation of several panel members in these organizations. The OECD Group has consolidated its programs for developing and providing recommendations and guidance to policymakers of its member countries while the ICSU/UNESCO UNISIST Central Committee recognized that a World Science

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[1] Ibid., pp. 6-7.

Information System, as described in the draft UNISIST report reviewed in December, was feasible, and that implementation was the next logical step. Because of the significance of the implications of the activities of these international efforts for United States national system development activities, the panel planned to give closer attention to them in 1970.[1]

Panel on Management of Information Activities (5)

The Panel on Management of Information Activities was formed by COSATI in 1966. On February 15, 1967, the panel was chartered to study and make recommendations leading to improvements in the management of federal agency scientific and technical information programs. Management problems are studied from operational and cost analysis aspects. To attain effective operation, the organization plan calls for the formation of action groups to work on specifically identified management problems. Based on exploratory discussions and studies, the panel working groups are functioning in four areas:

1. Planning, programming, budget systems
2. Unit cost analysis
3. Scientific and technical information activities funding inventory
4. Special interests and requirements.

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[1] Ibid., p. 7.

In 1966 this panel contributed to international programs, including submission of documented material for an OECD (Organization for Economic Cooperation and Development) conference and bibliographic material on the Economics of Information Handling to be used on an information exchange program. It is following with interest the Army efforts in its application of the Information Matrix to data systems inventory.

At the request of this panel, a present contract effort of the Panel on Education and Training for designing a syllabus for the training and education of scientists and engineers towards better use of scientific and technical information tools and resources has been extended to develop the organization structure and funding sources for all scientific and technical information activities of the federal government. This will be developed into a basic document to provide a guide and basic management tool for information specialists. A Brief Guide to Sources of Scientific and Technical Information has been issued by Information Resources Press, the publishing division of Herner and Company. The 102 page guide, a recapitulation and refinement of the substantive content of a course given before three groups of federal scientists and engineers in the fall of 1967, was developed under the sponsorship of the Panel on Education and Training of the Committee on Scientific and Technical Information, with partial financial

support by the United States Office of Education's Library Research Program. The purpose of the course and the guide is to train and inform working scientists and engineers as to the most direct and efficient means of seeking and acquiring work related information. The book departs from conventional source compendia in that it emphasizes the gathering of scientific and technical information as a problem solving exercise. It departs further in explaining the more recent advanced media in language that is readily understandable to both scientists and engineers and library information specialists.[1]

Principal accomplishments of the panel in 1967 fell into two basic categories: problem identification and establishment of objectives. In problem identification, exploratory studies covering unit costs of technical information services and reporting Federal Funds for Scientific and Technical Information Activities were conducted. These studies revealed wide variations in the visibility of funds used for scientific and technical information activities and in planning, programming, budgeting and reporting methods employed.

The following objectives were established on the basis of data and information gathered and reviewed:

1. Development of an environmental definition of scientific and technical information activities.

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[1]Federal Library Committee Newsletter, May, 1970, pp. 11-12.

2. Development of uniform criteria for use in reporting data for Federal Funds for Research and Development Series of the "Scientific and Technical Information Activities Section."
3. Development of cost benefit criteria of scientific and technical information systems and adoption of the planning, programming and budgeting system.
4. Development of a recommended user charge policy for scientific and technical information services to be considered by COSATI.

The 1968 plan of activities pursued the objectives identified and established during 1967. In 1968 uniform criteria were developed for taking an inventory of estimated obligations for scientific and technical information activities by federal agencies for fiscal year 1968. A special report to COSATI was prepared in June of 1968 utilizing the criteria developed by the panel. Under a special assignment by the panel, the Defense Documentation Center prepared a comprehensive bibliography on Cost/Benefits of Technical Information Services and Technology Transfer. A special Task Group of the panel studied service charge practices of four federal agencies (DOD, NASA, AEC and NTIS) for technical report dissemination. Recommendations were referred to the panel working group on user charges for consideration in developing overall federal policy. As a result of the

special task group effort, Commerce, DOD and NASA have jointly agreed upon service charge methodology for technical report dissemination, using the existing CFSTI procedures. The working group continued exploring ways and means to expand upon the task group work to cover additional information products and additional agencies.

Five basic definitions were developed and adopted for use by the panel. These definitions were developed to clarify the panel's area of concern, and to provide for functional understanding of scientific and technical information, scientific and technical information media, scientific information, and technical information.

During the last four meetings of the panel, a COSATI Handbook on Model Policies and Procedures was conceived and planned for preparation during 1969, but was still in preparation as of December, 1970. The panel objectives in initiating the handbook effort are to promote a desirable degree of uniformity of practices among the federal agencies and to provide a practical reference work for use by students, professionals, program managers and directors working in the field of scientific and technical information. The first edition of the handbook will cover philosophy and model policies and procedures in subject areas as follows:

1. Information transfer.
2. Standards for scientific and technical information.

3. Organization of scientific and technical information activities.
4. Planning, programming and budgeting systems for scientific and technical information activities.
5. Review and analysis of scientific and technical information activities.
6. Research and development in scientific and technical information.
7. Human factors in scientific and technical information.
8. Management of networks for scientific and technical information.
9. Service charges in scientific and technical information.

In addition to the above effort, the panel will seek to improve criteria for special inventories of federal funds for scientific and technical information activities, to be used in 1970 and subsequent years.

In 1969 improved instructions were developed for taking the annual inventory of estimated obligations for scientific and technical information activities. The new instructions orient data toward major programs. The new instructions were developed to avoid the need to take special COSATI inventories on a periodic basis. The instructions will provide for a more meaningful presentation of information in the Federal Funds for Research, Development and Other

Scientific Activities Survey published annually by the National Science Foundation.

The panel working group on user charges completed a study of user charge policies and application of these policies by federal agencies. The final draft of the study report will contain a proposed model policy for use as a guideline for agency scientific and technical information service charges.

Panel on Information Analysis and Data Centers (6)

The Information Analysis and Data Centers Panel was established at the end of 1966, and held its organizational meeting on February 24, 1967. The panel's goal is to provide advice and recommendations to the member agencies of COSATI on improvements in the management, operation, and utilization of information analysis and data centers.

The panel adopted for its own use a definition of the term "Information Analysis Center" which would be appropriate to the full range of COSATI interests, and would therefore apply equally well to centers concerned with physical sciences, medicine and biological sciences, and social sciences. This definition is:

> An Information Analysis Center is a formally structured organizational unit specifically (but not necessarily exclusively) established for the purpose of acquiring, selecting, storing, retrieving, evaluating, analyzing, and synthesizing a body of information in a clearly defined specialized field or pertaining to a specified mission with the

> intent of compiling, digesting, repackaging, or otherwise organizing and presenting pertinent information in a form most authoritative, timely, and useful to a society of peers and management.

During 1967 the panel undertook two major activities: the preparation of a directory and the sponsorship of a forum. The panel prepared a Directory of Federally Supported Information Centers. Candidate centers were requested to provide descriptions of their own scope, operations, and products. Over 400 centers were reviewed and 113 were accepted for inclusion in the Directory as meeting, either fully or provisionally, the criteria established.

The panel organized a Forum of Federally Supported Information Centers, held on November 7-8, 1967 at the National Bureau of Standards in Gaithersburg, Maryland.[1]

At the beginning of 1968, the Panel on Information Analysis and Data Centers adopted a general program for the year consisting of two broad questions:

1. What is the value of an Information Analysis Center?
2. What is the area of needs and capabilities which the panel should consider?

During the year, some progress was made in developing answers to each of these questions. A study was formulated and work begun on the problem of evaluating the effectiveness

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[1]Proceedings of the Forum of Federally Supported Information Analysis Centers, November 7-8, 1967, April, 1968. PB 177 051.

of Information Analysis Centers. The panel heard presentations of several case histories involving the closing down of specific information centers, and attempted to define the common factors in the case histories.

Relevant to the second question, the panel completed publication and distribution of a Directory of Federally Supported Information Analysis Centers and the Proceedings of a Forum (held in 1967) on Federally Supported Information Analysis Centers. Members of the panel presented to the group their interpretations of the role of information analysis centers in the national information systems of the future.[1] In addition, a bibliography for information analysis centers is nearing completion. Sections of the bibliography assigned to individual panel members are being edited and organized as a combined text for publication. This has not been completed as of December, 1970.

Approximately 250 people attended the Forum, including managers and operators of centers, agency sponsors of centers, administrators of federal information programs, and associates of other COSATI panels and projects. The Hon. Charles A. Mosher, Representative from Ohio, spoke on the needs of Congress for technical information and the mechanisms employed

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[1]Committee on Scientific and Technical Information of the Federal Council for Science and Technology, Progress of the United States Government in Scientific and Technical Communications 1968 (Washington, D. C.: Committee on Scientific and Technical Information, 1968), p. 10.

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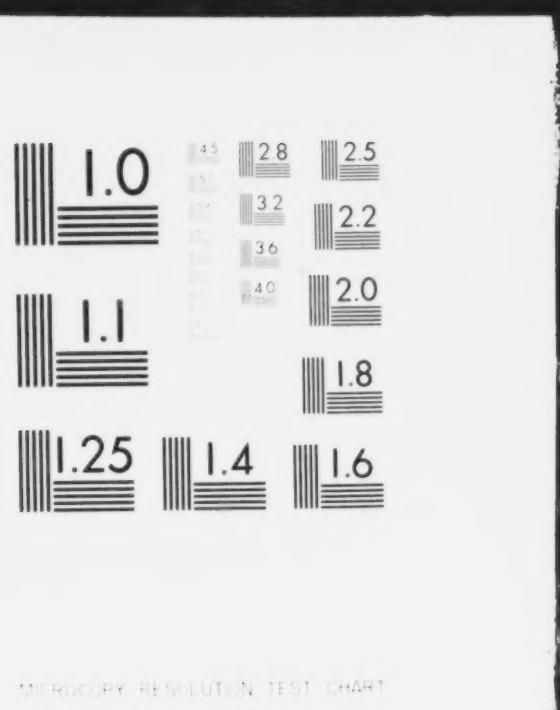

to satisfy those needs. Dr. Donald F. Hornig presented his views on the opportunities and challenges facing information analysis centers. Col. Andrew A. Aines, then Acting Chairman of COSATI, presented the activities of COSATI. Mr. Anthony Mondello, Department of Justice, spoke on the "Freedom of Information" Act and Mr. Abraham L. Kamenstein, Register of Copyrights, spoke on the proposed copyright revision. Working group discussions were held on solutions to administrative problems, solutions to data and information problems, solutions to personnel problems, solutions to customer interaction, information systems of the future, and documentation systems of the future. The proceedings of the Forum are in print.

In 1969 the Panel on Information Analysis and Data Centers continued to concentrate its efforts on problems, operations, and policies of information analysis centers, as defined in the series of recommendations stemming from the Forum of Federally Supported Information Analysis Centers held November 7-8, 1968. Among activities, accomplishments, and concerns were the following:

1. Investigation of the need for a personnel placement center for information analysis center employees. Results indicated such a need did not exist.
2. A preliminary articulation of "Policies for Information Analysis Centers."

3. Reprinting and distribution of a compendium of seven background papers on the Information Analysis Center as an aid to centers already in operation and those in process of being developed.

4. A revision of the panel's 1968 Directory of Federally Supported Information Analysis Centers was issued with the help of the National Referral Center of the Library of Congress.

5. Inventories of sample products of Information Analysis Centers listed in the panel's Directory and Users Guides were made.

6. An examination of standards and criteria for Information Analysis Centers was begun. This examination consisted of some survey visits by panel members to Information Analysis Centers and an examination of products and users guides of Information Analysis Centers.

7. A critical study was made of the literature on Evaluation of Information Analysis Centers by the Information Science Directorate of the Air Force Office of Scientific Research. The report to the panel resulted in an article.[2]

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[1] Directory of Federally Supported Information Analysis Centers, April, 1970. PB 189 300.

[2] Harold Wooster, "An Information Analysis Center Effectiveness Chrestomathy," Journal of the American Society for Information Science, XXI (March-April, 1970), 149-59.

Panel on Legal Aspects of Information Systems (7)

This panel evolved from the Task Group on Legal Aspects Involved in National Information Systems which was constituted in February 1967. The original Task Force's terms of reference required it to report by May 1, 1967, delineating significant present and future issues with respect to the letter and practice of the constitutional provisions of the copyright law. It was also asked to draft a proposed policy position paper for COSATI, to recommend any specific additions, deletions, or provisions in the copyright law revision pending in Congress (1967), and to recommend any other short or long term actions or mechanisms relative to authorship and information availability.

The Ad Hoc Task Group which was composed of experts serving on an individual basis prepared a report, The Copyright Law as it Relates to National Information Systems and National Programs. The conclusion of the Ad Hoc Task Group is that

> . . . scientific, technical and economic progress of the international competitive position of the United States depends on ready access to information as well as its effective use. As the means of disseminating information develops through technological progress, we must be sure that legal procedures, which may be necessary today in balancing the interests of the copyright owners in compensation with those of the users, continue to keep pace with the technological advance in the use of published information.[1]

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[1]Committee on Scientific and Technical Information of the Federal Council for Science and Technology, Progress of the United States Government in Scientific and Technical Communications 1967 (Washington, D. C.: Committee on Scientific and Technical Information, 1967), pp. 12-13.

The 1969 Annual Report for COSATI states that the purpose of the Panel on Legal Aspects of Information Systems is to identify and examine the legal issues arising from the developing technology in storing, processing, disseminating, communicating, and transferring information. Specifically, this panel seeks to examine the information environment, its evolution, and its potential to determine where the legal requirements may be affecting the needs of a dynamic and expanding culture.

1. The flow or transmission of information. This grouping embraces legal questions raised by attempts to achieve compatibility and standardization of data formats and procedures for moving information from one system into another; and the special problems that are created by the flow of information between and among federal and non-federal information systems.
2. Proprietary rights in information. This includes copyrights, patents, and trademarks and quite possibly problems of tort liability.
3. Information collection and control. This includes all aspects of individual privacy and its interrelations with information systems. It involves such privacy problems as those that may stem from the Freedom of Information Act; the possible broad "First Amendment Implications" of federal data collection and utilization; and the parti-

problems raised by promoting the flow of information between federal and nonfederal data systems.

4. Competition aspects of information systems. This area includes the antitrust and concentration of power implications of information systems as well as the myriad unfair competition aspects of governmental information handling.

The first phase was initially completed during the period of January-June 1969. A number of nationally prominent speakers presented their viewpoints in discussions with the panel and assisted the panel in the formulation of terms of reference and a proposed scope of effort.

These initial discussions led to the recognition of a need for a comprehensive bibliography or reference index of citations related to the legal aspects of information systems. Accordingly, the panel decided to undertake such an index and assigned its preparation to a subpanel.

The second phase of the panel's effort included the detailed study of specific areas of member interest. In order to accomplish this, the panel established a number of subpanels to study the tasks assigned in as much depth as possible. These subpanels are:

1. Right of Privacy
2. Right of Access
3. Proprietary Rights
4. International Law and Conventions

In addition, a subpanel was established to update the 1967 report of COSATI entitled The Copyright Law as It Relates to National Information Systems and National Programs.

Task Group on National Systems for Scientific Technical Information (I)

In November 1964, the Task Group on National Systems for Scientific and Technical Information was established to consider problems related to national and federal planning and policy. The objective of the task group is to prepare recommendations and plans for the development of national information systems to include actions for government agencies, suggestions for actions by the private sector, and steps to move from current to advanced information systems. The Task Group is the focal point for COSATI attention and interagency concern for scientific and technical information systems of national and international scope. The functions of the task group are to:

1. Undertake those investigations needed to:
   a. Inventory and evaluate the resources (people, libraries and other services, equipment, materials and funds) currently being utilized in national and other domestic scientific and technical information activities; and
   b. Ascertain the information needs of users such as scientists, engineers, managers, practitioners, and the technical public, as

individuals and as groups, in and out of the government.

2. Based upon these and other findings, prepare recommendations and plans for the development of national information system(s), to include actions for government agencies, suggestions for actions by the private sector, and steps to move from current to advanced information systems.

A major effort of COSATI has been to develop the fundamental assumptions that should guide the development of national systems for information handling. This question is so complex that adequate consideration required special administrative adjustments and contractual arrangements. One major area of concern has been the development of a sound concept of a national system for scientific and technical information. Development of the criteria for such a system was in itself a major task, and in 1964, COSATI set up a special task group to deal with this problem. A private corporation was engaged to assist the Task Group on National Systems for Scientific and Technical Information in the preparation of its study. The task group presented its first report in the fall of 1965 to COSATI, the Federal Council for Science and Technology, and the President's Science Advisory Committee. The report, Recommendations for National Document Handling Systems in Science and Technology, asked federal agencies to take certain added national

responsibilities, suggested the formation of a supervisory (or "capping") agency, urged OST to take a stronger hand in the organization of information activities, recommended that COSATI should develop plans and criteria for federal support of experiments in information sciences and technology, and suggested that OST should encourage the private sector to participate actively in developing the integrated national network.

The Federal Council did not accept the key recommendation of the report for establishment of a supervisory agency, but reached agreement that

> The Director of OST will initiate, on an exploratory basis, the operation of a central mechanism which will provide a comprehensive, coordinated program to insure the acquiring, cataloging, and announcing of the significant worldwide scientific and technical literature.

The Council was of the opinion that study of the nature of a "central mechanism" rather than the naming of a "supervisory agency" was the appropriate next step, and such a study was in progress at the end of 1960.

The task group decided that, as a sequel to its work on document handling systems, it would investigate during its next phase such areas as abstracting and indexing services, data handling systems, and oral and informal communications. Subsequently, a contract was given to a private contractor to conduct a study of the present status and effectiveness of current abstracting and indexing services, to make recommendations

of the optimal role of these services in the next decade, and to recommend specific actions to be undertaken by the federal government. The study is being funded and administered by the National Science Foundation for COSATI. Plans were also made to contract out studies of oral and informal communications and of data collection, reduction, analysis, and dissemination. The Advanced Research Projects Agency of the Department of Defense has provided funds for the two studies.[1]

During 1967, a number of meetings were held by the task group to seek better understanding of events and trends leading towards national information systems. Discussions were held with a number of groups involved in the development of large scale information systems. Thus in such fields as chemistry, physics and other disciplines, members of the task group kept in touch with those groups seeking to exploit new technology and develop new services for their patrons.

Several of the federal agencies continued to improve their own mission supporting information programs, which are, in large measure, de facto national systems. Experimentation continued in the testing of computers to provide personalized information services. In some fields, such as

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[1]U. S. Federal Council for Science and Technology, Report for 1965 and 1966 (Washington, D. C.: Government Printing Office, 1967), p. 29.

nuclear energy information, international programs were begun. The task group itself continued to consider the implications of studies undertaken on its behalf in abstracting and indexing, oral and informal communications, and the earlier study on document handling systems.

During 1968, the composition of the task group was enlarged to include representatives of scientific societies and educational information systems.

The task group, including newly designated observer consultants from the American Chemical Society and the American Institute of Physics, met for a two day workshop, June 26-27, 1968, at Front Royal, Virginia. Also present were other leaders in programs for information systems in federal agencies, in private organizations, and in the National Academy of Sciences.

In 1968, the task group received a three volume final report from Science Communication, Inc., entitled Study of Scientific and Technical Data Activities in the United States. The study was begun late in 1966, with the financial support of the Advanced Research Projects Agency, Department of Defense. The report presents an extensive listing of active data systems, much valuable collateral information, and many thought provoking recommendations. COSATI has not endorsed the recommendations or conclusions, but has released the report to stimulate further discussion and analysis of

the subject.[1]

Efforts continued during the year to exploit the findings of earlier task group studies. The "responsible agent" concept, under which selected federal agencies assume responsibility for specialized national systems of information relevant to their missions, was considered for application in four areas--agriculture, biomedicine, nuclear energy, and space. It is expected that these national systems will be formally established in the next year. In 1969, COSATI identified these four areas as already operating at a national level. The range and diversity of these systems is well illustrated by the Marine Data Program of the Marine Sciences Council, and the many technology utilization programs of AEC, DOD, NASA, and the Office of State Technical Services.

For the year 1969, the program of the task group was directed toward two goals--identification of existing information systems which serve users on a national basis, and development of a rationale by which such systems may better relate to one another and to their users.

Four special area information systems relevant to missions of selected federal agencies serve as prototypes

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[1]Committee on Scientific and Technical Information of the Federal Council for Science and Technology, Progress of the United States Government in Scientific and Technical Communications 1968 (Washington, D. C.: Committee on Scientific and Technical Information, 1968), p. 2.

for the expanding roster of systems: those concerned with agriculture, biomedicine, nuclear energy, and space and aeronautics. During the year, the task group added to this list a number of systems operated by or for federal agencies in special subject areas as follows: air traffic control, education, standard ereference data, poison control, transportation research, and weather. Other systems, operated by professional societies in selected discipline areas include chemistry, mathematics, physics and psychology. At least one candidate for inclusion is maintained by private industry for its own use, and that of its customers, the airline reservation information system.

Task Group on Library Programs (2)

In 1969 COSATI established the Task Group on Library Programs. The purpose of the task group is to develop recommendations designed to improve communication, to stimulate cooperation, and to foster joint planning and programs among the various federal agencies and the nation's research libraries. While the emphasis is on research libraries, the interests of the task group are not limited solely to science and technology. The membership of the task group includes, in addition to federal librarians and information specialists, individuals from research libraries, private foundations, and the business community.

The first meeting of the task group was held in August 1969. Executive Committee meetings are held each

month with the full task group convening on a quarterly basis. Two subcommittees were active at the end of 1969--one on Negro research libraries and one on conference planning. The latter planned a national conference held in Washington in March 1970 for the purpose of exploring ways in which federal information resources may be more widely shared and utilized by the research library community. The Federal Information Resources Conference, cosponsored by COSATI and the Federal Library Committee was held on March 26-27, 1970, in Washington, D. C. Emphasis was placed on the identification and availability of federal information resources for research libraries. Especial attention was directed toward the determination of problem areas related to the effective utilization of federal information services and products. Participation in the Conference was by invitation. One hundred conferees represented the academic, state, and federal research library communities. Information concerning the availability of the proceedings may be obtained from the Chairman of the COSATI Task Group on Library Programs John Sherrod, Director, National Agricultural Library, Room 200, Beltsville, Md. 20705; or Frank Kurt Cylke, Executive Secretary, Federal Library Committee, Room WM-211, Library of Congress, Washington, D. C. 20540.[1]

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[1] Federal Library Committee Newsletter, March, 1970, p. 8.

The task group is in a uniquely favorable position to assist in focusing the interests of a large number of different groups in accelerating efforts to improve American research libraries. This problem becomes particularly acute with the continuing exponential growth of knowledge and rapidly expanding user population.[1]

Task Group on Dissemination of Information (3)

The COSATI Task Group on Dissemination of Information was formed during the summer of 1967 to study the handling of scientific and technical information throughout the government, and the release, dissemination and withholding of information. The group is charged with making recommendations to COSATI on improving present procedures and policies, and on those aspects of dissemination of unclassified scientific and technical information wherein uniform guidelines and policies might be valuable. Public Law 90-23 (The Freedom of Information Act) was examined to determine its effect on scientific and technical information programs.

The basic mission and goal of the Task Group on Dissemination of Information is to study the problems associated with the dissemination of scientific and technical information and offer recommendations for improvement;

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[1]Committee on Scientific and Technical Information of the Federal Council for Science and Technology, Progress of the United States Government in Scientific and Technical Communications 1969 (Washington, D. C.: Committee on Scientific and Technical Information, 1969), p. 13.

recommendations that would be useful to the government as a whole in facilitating and insuring effective dissemination, consistent with the public interest, national security, and other factors which must be considered.

Since its formation in 1967, the Task Group on Dissemination of Information has been reviewing the dissemination policies and practices of the federal agencies and departments which generate and disseminate the major portion of the government's scientific and technical information. Titled Recommendations for Improving the Dissemination of Federal Scientific and Technical Information, the final draft of the report is based on interviews and correspondence with the representatives of federal agencies, the specific and technical community at large, and the library community.

While acknowledging the considerable progress of the last decade, the task group noted some persistent impediments to dissemination. Among the critical problems are those associated with, or caused by, the ambiguities of the Export Control Acts, the absence of incentives for declassifying or downgrading classified information, the cumbersome procedures for obtaining some limited access documents, a serious lack of bibliographic control and timeliness in the distribution of technical reports by the Government Printing Office, and the failure of some agencies to contribute copies of their technical documents to the central access point, namely the Clearinghouse for Federal Scientific and

Technical Information.[1]

The group offered various recommendations aimed at improvements in statutory requirements, and at the definition of roles and responsibilities of the federal agencies. Among the specific recommendations are those which urge full implementation of the "Clearinghouse Concept," regular periodic surveys of agency dissemination mechanisms, time limits on the agency responses to inquiries under the Freedom of Information Act, and improvements in the handling of technical information by the Government Printing Office and the Clearinghouse.

Task Group on Technology Utilization (4)

The Task Group on Technology Utilization was formed in 1967 and began its meetings in early 1968 devoting most of its time to preliminary efforts required to enable the group to begin the formulation of policies which might be recommended by COSATI and to the Federal Council for Science and Technology.

The task group reviewed existing policies and programs for technology transfer within the federal government from both the input and dissemination point of view. The group published a bibliography on the cost/benefits of technology transfer.[2]

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[1]The name has been changed to National Technical Information Service (NTIS).

[2]Cost/Benefits of Technical Information Services and Technology Transfer. AD 672 500.

The group expended considerable effort on pinpointing the distinctions between technology transfer and conventional scientific and technical information dissemination.

During 1968 the group embarked upon a review of the recommendations in the report of the Subcommittee on Science and Technology of the Senate Select Committee on Small Business entitled Prospects for Technology Transfer.[1]

In 1968 the group worked on the task of formulating policies for technology transfer which might be recommended to the Federal Council for Science and Technology. The final draft has been submitted to COSATI and when fully accepted may make a substant al contribution to interagency solution of technology utilization problems.

Task Group on Steering Group (5)

COSATI's Ad Hoc Steering Group major figure is Col. Andrew A. Aines, USA (Ret.), Chairman of COSATI, as he directs the course of the Committee. The last formal listing of this group was in the COSATI Progress of the United States Government in Scientific and Technical Communication 1967.

Task Group on Synoptic Data (6)

The Task Group on Synoptic Data was established in 1968 and in 1969 submitted a final report pertinent to

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[1]U. S. Congress, Senate, Report of the Subcommittee on Science and Technology to the Select Committee on Small Business, 90th Cong., 2d sess., 1968. Pp. 19.

marine data and weather and earth resource satellite observations. The Synoptic Data report was endorsed by COSATI and was accepted by the Federal Council for Science and Technology in 1969. The report, Task Group Report on Data Centers, is due for publication in 1971.

Task Group on the Role of the Technical Report (7)

Established in 1966 the mission of this task group was to determine what specific steps might be taken to elevate the status and quality of the technical report and, indirectly, the status of those who prepare them.

During 1967 the task group completed its survey and analysis of the issues surrounding the role of the technical report in scientific and technological communication and the interfaces between it and other media. The Role of the Technical Report in Scientific and Technical Communication[1] reviews the prior literature and builds upon previous studies and analyses of the communication elements. It is especially concerned with the issues of quality in the technical literature. The task group reiterated that the journal literature clearly represents a national resource whose continued high standards of quality and effective communication service to the technical community must continue to receive the support of the private and governmental

[1]The Role of the Technical Report in Scientific and Technical Communication, December, 1968. PB 180 944.

sectors. In this connection, it recommends increased attention to the copyright and reprography issues.

For the technical report literature, the group states that the government should insist upon full and high quality reporting of work done under government contract. Adequate time and resources under the contract must be allocated to the review function which should include attention to the related aspects of high quality writing, editing, presentation of data and findings, statement of the measurement conditions, dependent references and objective statements of the context and limitations of the results.

This task group has been disbanded, its function having been accomplished.

CHAPTER V

SUMMARY AND CONCLUSIONS

The significant problems of 1969 involved new ways of handling and using scientific and technical information. Computerized information and data systems, storage of information in optical microimages, communication satellites, telemetery of data--these and similar aspects of newer technology were studied by COSATI in 1969.

Recognition was giver to the need to harness new information handling capabilities in the development of multivector systems and networks which are strongly user oriented. Concern for the user in the face of the flood of information has been a principal reason for COSATI attention to the functions of analysis and condensation of information.[1]

COSATI was concerned with the sociological implications of information systems and application of advanced data processing to aid in the solution of societal problems. COSATI and OST are studying the application of information resources to societal and environmental problems, not only

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[1]U. S. Federal Council for Science and Technology, Annual Report, 1969 (Washington, D. C.: Government Printing Office, 1970), p. 13.

to provide better utilization of existing information, but in planning for new systems where needed.

COSATI, with the Office of Science and Technology, has undertaken to provide leadership by conferences and seminars, forming small task forces, and developing exploratory study programs in the absence of a single responsible agency and an exclusive mission assignment.[1] COSATI has appointed a Task Force on Dissemination of Information with the charge of reviewing the federal government's technical information dissemination policies and practices, measuring their adequacy, and recommending improvements as needed. Col. Currie S. Downie is serving as the chairman of the task force.

> Some of the questions which the Task Force wishes to pose to information scientists and other scientists and engineers, are: "What obstacles do they encounter in obtaining access to the Government's scientific and technical information?" "How do they view the present dissemination systems?" "Are the results of the Government's vast [research and development] programs actually available to and utilized by the private sector of the economy?" "What improvements are needed and what recommendations should be made?" "What specific aspects of Government dissemination programs or systems do they find satisfactory, commendable, or would they like to see expanded?"[2]

COSATI and its member agencies have contributed to the planning and operation of two major undertakings: the

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[1] Ibid., p. 15.

[2] Scientific Information Notes, I (July-August, 1969), 132-33.

National Engineering Information and Data Conference and the Seminar on Foci for Scientific Publication. Proceedings of the former have been distributed by the Engineers Joint Council. Batelle Memorial Institute scheduled the report of the latter for distribution in early 1970.

The importance of COSATI in the federal scientific and technical community as a forum cannot be overstressed. Because of the multiple agency interest and the wide distribution of responsibilities of the various agencies and departments, COSATI serves as a valuable forum and focus of diverse viewpoints. The recommendations formulated by COSATI are implemented by the Office of Science and Technology. It is at COSATI that the various agencies and departments meet, discuss, and plan actions which affect the whole nation and the whole body of scientific and technical information systems and users. The COSATI panels and task groups are the working factors through which the efforts of many COSATI plans are studied and further implemented.

COSATI has done a great deal to ensure the existence of at least one accessible copy of each significant publication of the worldwide scientific literature in the United States. The studies on abstracting, indexing, classification and informal communication have made volumes of literature more accessible and easier to use for the people working

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[1]U. S. Federal Council for Science and Technology, Annual Report, 1969 (Washington, D. C.: Government Printing Office, 1970), p. 15.

in the field. The promoting of standardization of indexing vocabularies, classification schemes and microforms have opened another dimension to scientific and technical literature. Examples of the work in these areas are the Federal Microfiche Standards, Standard for Descriptive Cataloging of Government Scientific and Technical Reports, COSATI Subject Category List, Guidelines to Format Standards for Scientific and Technical Reports Prepared by or for the Federal Government and the COSATI Standard Corporate Author Headings.

The development of education and training for the users of documents has led to better communications with the users and their respective agencies and departments as well as helping the user to be able to get the literature in his interest fields with less difficulty and better results. The development of policies for acquisitions, dissemination and translation of national and foreign documents has been a major step forward. One of the major accomplishments of COSATI is the Recommendations for National Document Handling Systems in Science and Technology, 1965, which has been studied by many different groups with many of their recommendations being acted on.

COSATI has been the mechanism by which, or with whose endorsement, several new central organizations have been created to carry out special functions of the national network. These include:

1. National Technical Information Service (NTIS), formerly the Clearinghouse for Federal Scientific and Technical Information (CFSTI).
2. National Referral Center for Science and Technology (NRCST).
3. National Standard Reference Data System (NSRDS).
4. Science Information Exchange (SIE).

COSATI is growing. This growth is reflected in its sponsoring in 1969 of:

1. Agency information and communication systems, through the linkage of document centers, title announcements, work unit reporting.
2. Interrelation and cooperation between federal agencies and private organizations, and international efforts.

COSATI is continuing to show concern for:

1. The evolving scientific and technical information systems in this country.
2. The ability of federal agencies to utilize scientific and technical information effectively and efficiently in carrying out their mission.
3. The development of internationally compatible information systems, leading to maximum interchange of the world's scientific and technical information.

4. The development and application of information processing technology including telecommunications, satellites and computer science.

During 1969, in addition to its emphasis on improving classical bibliographic and library services, COSATI undertook an examination of the role of the federal scientific and technical information community in applying scientific information and data to major new problems, such as environmental quality, economic and social problems, and systems for projects involving federal, state, and local governments.

A major contribution during this period was the Report of the Committee on Scientific and Technical Communication of the National Academies of Engineering published in 1969, known as the SATCOM Report. In July 1969, COSATI sponsored an open discussion of the salient features of the SATCOM Report at the Smithsonian Institution.

The SATCOM Report examined the nature of the problems facing the information generating and using communities in both the private and public sectors. The five general areas examined included:

1. Planning, coordination, and leadership at the national level.
2. Consolidation and reprocessing services for the user.
3. Classical services (abstracting and indexing,

libraries, formal and semiformal publications, and meetings)

4. Personal informal communication

5. Studies, research and experiments.

COSATI has its problems, it has no authority to carry out decisions and the panels' and task groups' work is all voluntary. They are slow in getting their material published and slow in publicizing the information they do have available for users. Yet, COSATI is becoming more important and better known.

COSATI is growing. Watch for it to continue with the momentum that it has had since its beginning, in a new area; that of applying scientific information and data to major new problems, such as environmental quality, economic and social problems, and systems for projects involving federal, state, and local governments. COSATI is moving away from its bibliographic oriented systems to those of synoptic data systems or synoptic systems.

APPENDIX I

COMMITTEE ON SCIENTIFIC AND TECHNICAL INFORMATION, MEMBERSHIP, 1969

Colonel Andrew A. Aines, USA (Ret.), Chairman
Office of Science and Technology

Charles T. Meadows, Executive Secretary
Office of Science and Technology

Members:

Dr. Burton W. Adkinson	National Science Foundation
Dr. Edward L. Brady	National Bureau of Standards
Mr. Edward J. Brunenkant	Atomic Energy Commission
Mr. Walter C. Christensen	Office of the Director of Defense Research & Engineering
Dr. Martin M. Cummings	National Library of Medicine
Mr. Melvin S. Day	National Aeronautics and Space Administration
Dr. H. Elston Hooper	Veterans Administration
Mr. Arthur B. Jebens	Department of the Interior
Mr. Addison Richmond	Department of State
Mr. John Sherrod	National Agricultural Library
Mr. Bernard Urban	Department of Housing and Urban Development

Observers:

Mr. W. Buril Barclay	Federal Aviation Administration
Mr. Harold P. Belcher	Post Office Department

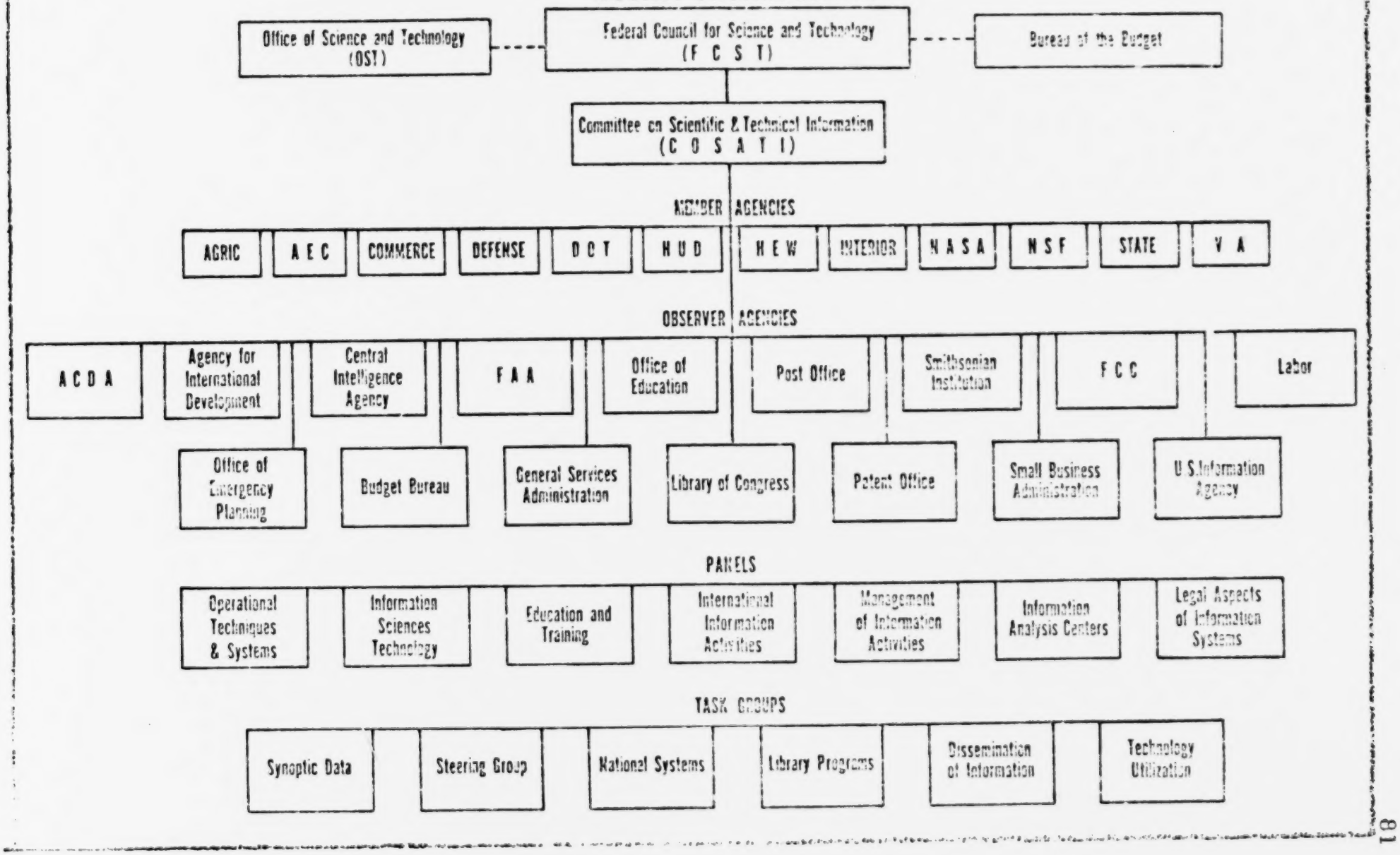
Mr. Simon Bourgin	U. S. Information Agency
Dr. Lee G. Gurchinal	U. S. Office of Education
Mr. John S. Coleman	National Academy of Sciences
Dr. Disney R. Galler	Smithsonian Institution
Mr. Robert Howard	Bureau of the Budget
Mr. Philip B. Kennedy	Central Intelligence Agency
Mr. David Mayer	Agency for International Development
Mr. Artel Ricks	National Archives & Records Services (GSA)
Mr. Norman D. Schwartz	Federal Communications Commission
Mr. G. Wilber Seymour	Small Business Administration
Mr. Richard A. Spencer, Jr.	U. S. Patent Office
Dr. Murray Turoff	Office of Emergency Preparedness
Dr. William M. Usdane	U. S. Department of Labor
Mr. Robert F. Whipp	Arms Control and Disarmament Agency

Liaison:

Mr. John G. Lorenz	Library of Congress

APPENDIX II

COSATI ORGANIZATION



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